

Claims

1. A multicast-enabled network element comprising:
 - a first logical interface for receiving data from first host;
 - 5 a second logical interface for transmitting said data to one or more further hosts;
 - a processor for defining a group comprising one or more further hosts, wherein a further host is added to the group in response to the reception of a request; and
 - 10 a cache;wherein said network element is configured to store received data in the cache until a predetermined condition is met and, in response to the meeting of this condition, to forward the data to said further hosts in said group and the processor is configured to limit the group to further hosts situated at the same location.
- 15 2. A network element according to claim 1, wherein one or both of a request and the file is transmitted between the network element and the first host via a cellular communications network and the location of the further host is defined in terms of a cell, so that the group is limited to further hosts situated in an area
- 20 covered by a single cell.
3. A network element according to claim 1 or 2, further configured to forward the file over a wireless communication network, being the last network element located before an air-interface in a file delivery path between the first host and one
- 25 or more further hosts.
4. A network element according to any one of claims 1 to 3, wherein said network element is a router.
- 30 5. A network element according to any one of the preceding claims and further comprising a timer, wherein the predetermined condition is one of:
 - the receipt of a predetermined number of requests for the file from said further hosts; or

the expiry of a time limit.

6. A network element according to claim 5, wherein the time limit changes dynamically.

5 7. A network element according to any one of claims 1 to 6, further configured to receive requests from the further hosts via a first communication path and to forward data to the further hosts via a second communication path, separate from the first communication path.

10 8. A network element according to claim 7, wherein the first communication path and the second communication path comprises separate networks.

9. A method of file delivery over a network comprising the steps of:
15 receiving a request for the file from a first host at a network element;
retrieving the file from a second host;
storing the file in a cache associated with the network element;
defining a group including the first host;
waiting for a period of time until a predetermined condition is met where, if
20 further requests for said file are received by the network element from one or more other hosts before the period of time expires, said one or more other hosts are added to the group; and

forwarding the file to the first host and to any other hosts in said group,
wherein the group is limited to the first host and other hosts situated at the same
25 location as the first host.

10. A method according to claim 9, wherein one or both of a request and the file
is transmitted between the network element and the first host via a cellular
communications network and an other host is considered to be at the same location
30 as the first host if it is situated in an area covered by the same cell.

11. A method according to claim 9 or 10, wherein the file is forwarded over a
wireless communication network, the network element being the last network

element before an air-interface in a file delivery path between the second host and the first host.

12. A method according to any one of claims 9 to 11, wherein the network
5 element is a router.

13. A method according to any one of claims 9 to 12, wherein the predetermined
condition is one of:
the receipt of a predetermined number of further requests; or
10 the expiry of a time limit.

14. A method according to claim 13, wherein the time limit changes dynamically.

15. A method according to any one of claims 9 to 14, wherein the request is
15 received via a first communications network and the file is forwarded via a second
communications network.

16. A computer program comprising program instructions for causing a network
element to perform the method of any one of claims 9 to 15.

20 17. A computer program according to claim 16, embodied on computer readable
medium.

18. A multicast-enabled network element comprising a cache, said network
25 element being configured to perform the following steps, in response to a request
for the delivery of a file from a first host:

retrieve the requested file from a second host;
store said file in said cache;
define a group including the first host;
30 delay forwarding the file to the first host for a period of time until a
predetermined condition is met and, if further requests for said file are received by
the network element from one or more other hosts before the period of time
expires, add said one or more other hosts to the group; and

forward the file to the first host and to any other hosts in said group, and is further configured to limit the group to the first host and to other hosts situated at the same location as the first host.

- 5 19. A network element according to claim 18, configured so that one or both of the request and the file is transmitted between the network element and the first host via a cellular communications network and an other host is considered to be at the same location as the first host if it is situated in an area covered by the same cell.
- 10 20. A network element according to claim 18 or 19, further configured to forward the file over a wireless communication network, the network element being the last network element before an air-interface in a file delivery path between the second host and the first host.
- 15 21. A network element according to any one of claims 18 to 20, wherein said network element is a router.
22. A network element according to any one of claims 18 to 21, wherein the predetermined condition is one of:
- 20 the receipt of a predetermined number of further requests; or
the expiry of a predetermined time limit.
23. A network element according to any one of claims 18 to 22, wherein the request is received via a first communications network and the file is forwarded via
- 25 a second communications network.
24. A network element comprising:
- first receiving means for receiving data from a first host;
- second receiving means for receiving a request from one or more further
- 30 hosts;
- means for defining a group of further hosts, wherein a further host is added to the group in response to the reception of a request;
- forwarding means for forwarding said data to the further hosts; and

data storage means;
wherein said network element is configured to store received data in the data
storage means until a predetermined condition is met and, in response to the
meeting of this condition, to retrieve said data and to forward the data to the
5 further hosts in the group.